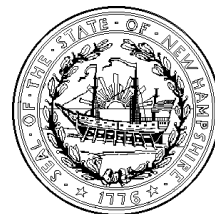




State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES
29 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095
(603) 271-1370 FAX (603) 271-1381



June 24, 2004

EPA Docket Center (Air Docket)
U.S. EPA West (6102T), Room B-108
1200 Pennsylvania Ave., NW
Washington, DC 20460

Attention Docket ID No. OAR-2002-0056

Mr. William Maxwell
Combustion Group (C439-01)
Emission Standards Division
Office of Air Quality Planning and Standards
U.S. EPA
Research Triangle Park, NC 27711

Re: Proposed National Emission Standards for Hazardous Air Pollutants; and in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units
(Federal Register Vol. 69, No. 20, January 30, 2004, pgs. 4652-4752)
Docket ID No. OAR-2002-0056

The State of New Hampshire Department of Environmental Services (NHDES) appreciates the opportunity to provide comments on the U.S. Environmental Protection Agency's (EPA's) proposed rulemaking, published on January 30, 2004 in the Federal Register (69 FR 4566-4650), titled Proposed National Emission Standards for Hazardous Air Pollutants; and in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units. NHDES provides in this correspondence both general comments and additional data for consideration by EPA and requests that EPA fully consider this information prior to adopting a final rule.

Protection of Health

In December 2000, EPA found pursuant to Clean Air Act (CAA) Section 112(n)(1)(A) that regulation of coal and oil-fired utility units under CAA Section 112 is "appropriate and necessary" due to the health impacts associated with emissions of hazardous air pollutants from such units. In December 2000 EPA also concluded that the health impacts associated with emissions of hazardous air pollutants from natural gas-fired utility units were negligible and that regulation of such units under CAA Section 112 was not appropriate or necessary.

In the February 1998 “Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units – Final Report to Congress” (Utility RTC), EPA examined 67 of 188 hazardous air pollutants (HAPs) listed in Section 112(b) of the CAA. These 67 HAPs represent the pollutants that EPA believed could potentially be emitted from utility units. The Utility RTC identified mercury (Hg) as the HAP of greatest concern from a public health perspective from coal-fired boilers. The Utility RTC also included information which demonstrated that nickel (Ni) was the pollutant of most concern emitted by oil-fired electric utility units due to its high level of emissions from these units and due to the negative public health effects associated with exposure to nickel.

With respect to arsenic, EPA also concluded in the Utility RTC that there were several uncertainties associated with both the cancer risks estimated from exposure to arsenic and that further analyses were needed to characterize the risks posed by arsenic emissions from utility units. With respect to lead (Pb) and cadmium (Cd), EPA found that the quantities emitted by utility units and the inhalation risks were relatively low and did not warrant further evaluation at this time. EPA also found that other non-Hg and non-Ni HAPs posed no hazards to public health. In addition EPA examined hydrogen chloride (HCl) and hydrogen fluoride (HF), two HAPs that are emitted from utility boilers as inorganic, acid gases and found no exceedances of the health benchmarks for either of these HAPs.

With respect to dioxins, EPA concluded in the Utility RTC that the quantitative exposure and risk results for such HAPs did not conclusively demonstrate existence of health risks associated with exposure to utility emissions either on a national scale or from any individual utility unit.

Following the completion of the Utility RTC, EPA obtained additional information concerning the negative impacts from mercury, including information about the extreme level of toxicity associated with methylmercury. This information further confirmed the serious hazards to public health and the environment associated with exposure to mercury and mercury compounds. At the direction of Congress, EPA funded an independent evaluation by the National Academy of Sciences (NAS) of the available data related to the health impacts of methylmercury and requested that the NAS provide recommendations to EPA for use in determining a reference dose (RfD) for this compound. The NAS conducted an 18-month study of available data on the health effects of methylmercury and provided EPA with a report of its findings. The NAS report found, in part, EPA's RfD to be scientifically justifiable even though the NAS recommended that EPA rely on different studies for setting the RfD for methylmercury.

Since the time that the Utility RTC was written, EPA has collected additional data that corroborated its previous estimate of nationwide Mercury emissions and confirmed that utility units are the largest, uncontrolled, anthropogenic source of mercury emissions in the United States. EPA also found a plausible link between the methylmercury concentration in fish and mercury emissions from coal-fired utility boilers (65 FR 79830). In addition, other researchers have found plausible links between the mercury concentration in the blood of an avian indicator species, loons, and also in loon eggs.

All of this information led EPA to conclude that it was “appropriate and necessary” to regulate HAP emissions from coal and oil-fired utility units under Section 112 of the CAA not

only because EPA had identified several available control options for reducing mercury emissions from coal-fired utility units and for reducing nickel emissions from oil-fired utility units, but also “because the implementation of other requirements under the CAA will not adequately address the serious public health and environmental hazards arising from such emissions” (65 FR 79830).

From August 2001 to March 2003 EPA convened a “Working Group” under the existing Permits, New Source Review, and Toxics Subcommittee of the Clean Air Act Advisory Committee (CAAAC) chartered under the Federal Advisory Committee Act (FACA). The Working Group consisted of representatives from federal, state, local government, industry, and environmental groups. This Working Group met 14 times and thoroughly analyzed all issues related to the control of toxic emissions from utility units in order to address health concerns. During the course of the of these meetings, the Working Group never considered the possibility of replacing Section 112 requirements with Section 111 requirements as EPA ultimately proposed. In moving forward with its mercury rulemaking, EPA set aside many of the results of the Working Group’s deliberations. In doing so, EPA risks exposing the public to unforeseen health impacts that might result in making such a major change to how toxic pollutants are controlled.

General Comments

A. A stringent maximum achievable control technology (MACT) standard is needed to address local mercury “hot spots”

There is no longer any doubt that mercury is a highly toxic, persistent, bioaccumulative pollutant that has been linked to many different negative health effects including neurological and developmental problems and cancer (see <http://www.epa.gov/opptintr/pbt/mercury.htm>). Exposure to mercury has also been linked to increased incidence of myocardial infarction and coronary disease in adults. Attachment #1 to this correspondence contains a detailed list of references regarding the negative health impacts of exposure to mercury. Attachment #2 and Attachment #3 to this correspondence, respectively, (“Assessing the potential impacts of methylmercury on the Common Loon in southern New Hampshire,” Report BRI-2001-04, November, 2001 [“the Evers report”]) and (“Integrating Atmospheric Mercury Deposition with Aquatic Cycling in South Florida: An approach for conducting a Total Maximum Daily Load analysis for an atmospherically derived pollutant,” November, 2003, [“the Florida Everglades report”]) include more detailed information and a list of references regarding the negative environmental impacts of exposure to mercury for fish and birds. The Evers report and the Florida Everglades report also include information on adverse local scale impacts (“hot spots”) associated with emissions from coal-fired power plants and municipal solid waste incinerators.

It is troubling that EPA has chosen to categorically disregard all recommendations made by representatives from the Northeast States for Coordinated Air Use Management (NESCAUM) and the State and Territorial Air Pollution Control Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO), especially since these air pollution control experts were specifically designated to provide these recommendations on behalf of state and local air pollution control agencies. DES requests that EPA reconsider these recommendations and incorporate them in the final rule. DES is providing an electronic copy of these recommendations (“State and Local Air Pollution Control Officials Recommendations for Utility MACT Standards - Discussed at the September 9, 2002 and October 17, 2002 Utility MACT Workgroup meetings

and amended October 22, 2002") as Attachment #4 to this correspondence in order to assist EPA in completing this task.

It is also very troubling that EPA continues to refuse to perform the Integrated Planning Model (IPM) modeling runs for the traditional maximum achievable control technology (MACT) approach under Section 112 without cap and trade that were requested by the representatives of NESCAUM and STAPPA and ALAPCO during the FACA process. DES hereby renews the request for EPA to perform these IPM runs prior to adopting the final rule and suggests, in this regard, that EPA use the recommendations and policy discussions contained in Attachment #4 in conjunction with the other data already available to EPA in order to accomplish this task. DES fully believes that the results of such IPM runs would confirm the superior environmental and health benefits of the recommendations made by the designated representatives of state and local air pollution control agencies during the FACA process.

It is imperative that EPA regulate mercury emissions from coal-fired utility boilers by adopting a stringent mercury MACT standard for these facilities in order to address the significant adverse local scale impacts ("hot spots") primarily associated with the emissions of oxidized mercury (Hg^{+2}) from these sources. EPA has already reported that deposition of oxidized mercury (Hg^{+2}) can be expected to occur within 50 kilometers of the source of these mercury emissions. As cited above, evidence of the existence of mercury "hot spots" has already been documented in the Evers report and Florida Everglades report. Additional evidence of the existence of mercury "hot spots" can be found on the following University of Michigan website (<http://www-personal.umich.edu/~kalwali/mich+ohio.html>). This University of Michigan website contains animations showing modeled mercury deposition across the northeast United States and Canada. These maps are color coded to distinguish the relative "hot spots" of mercury deposition associated with mercury emissions from nearby sources (the local impact) from the longer-range transport of mercury associated with mercury emissions from regional sources. As can be noted from these maps, mercury "hot spots" exist throughout the Northeast United States and Canada. Recent stack test data collected from coal-fired utility boilers located in New Hampshire also indicates that New Hampshire is not immune from the "hot spots" problem since 72 to 94 percent of the mercury emitted by these boilers is emitted as oxidized mercury (Hg^{+2}). More details on this stack test data can be found later in this correspondence and the attachments to this correspondence. Additional information regarding measurements of mercury deposition in New Hampshire including its environmental and health impacts can be found on the NHDES website (<http://www.des.nh.gov>) in a report titled "Air Pollution Transport and How It Affects New Hampshire," May 2004.

In the event that EPA decides to pursue trading and banking regulations as a mechanism for regulating HAP emissions from coal and oil-fired utility units, despite the lack of legal authority to do so (see detailed comments in separate letters submitted by the State of New Hampshire Attorney General and others), any trading and banking program should be used to "supplement rather than supplant" other CAA requirements. EPA must, at a minimum, adopt an initial set of regulations pursuant to Section 112 of the CAA. Any additional regulations adopted pursuant to Section 111 of the CAA using trading and banking mechanisms, should only allow for achieving compliance with a cap on emissions that is more stringent than the plant-specific, health based requirements of MACT standards adopted pursuant to section 112 of the CAA. As previously cited, EPA has already concluded that it is "appropriate and necessary" to regulate

HAP emissions from coal and oil-fired utility units under Section 112 of the CAA, not only because EPA has identified several available control options for reducing mercury emissions from coal-fired utility units and for reducing nickel emissions from oil-fired utility units, but also “because the implementation of other requirements under the CAA will not adequately address the serious public health and environmental hazards arising from such emissions” (65 FR 79830). EPA and others have collected additional scientific and technical information that further supports this conclusion since the time of this statement by EPA (see Attachment #1 which includes a list of references).

B. New Hampshire emissions data shows that 72-94% of mercury is in the oxidized form

During May and June of 2003 stack testing was performed using the Ontario Hydro method to determine the amount of total mercury emissions and the total amount of mercury by species emitted from the coal-fired electric utility boilers located at Merrimack Station in Bow, NH and Schiller Station in Portsmouth, NH. A summary of the results of these stack tests is provided as Attachment #5 to this correspondence. NHDES has created bar graphs showing the estimated total annual mercury emissions and the annual speciated mercury emissions for Merrimack Station Units 1 and 2 and Schiller Station Units 4, 5, and 6 based on these stack test results, and the total annual unit-specific heat inputs of these units for calendar years (1996, 1997, and 1999 through 2003). NHDES has also used these stack test results in conjunction with other in-house mercury emissions estimates to create a bar graph showing total annual mercury emissions by stationary source sector for calendar years 1997, 1999 through 2003, and projected 2005. These bar graphs are provided as Attachments #6 through #15. NHDES has also created individual pie charts showing total annual mercury emissions by sector for calendar years 1997, 1999, 2001, 2003 and projected 2005 which are provided as Attachments #16 through #20 to this correspondence. All of these graphs and charts were created to provide information on the total annual mercury emissions and speciated annual mercury emissions for the coal-fired utility boilers located in New Hampshire and information on the trends in annual mercury emissions from all sectors of stationary sources located in New Hampshire.

Based on the May and June 2003 stack testing, mercury emissions from Merrimack Station are briefly described in Table 1:

Table 1: Merrimack Station Annual Mercury Emissions (pounds/year)

Year	Particulate Hg (Hg^p)	Elemental Hg (Hg⁰)	Oxidized Hg (Hg⁺²)	Total Hg (Hg^T)
1996	0.4	6.1	98.7	105.2
1997	0.5	7.7	124.3	132.5
1999	0.4	6.7	108.6	115.7
2000	0.4	7.1	114.9	122.4
2001	0.4	6.5	104.6	111.5
2002	0.4	6.5	104.5	111.4
2003	0.4	6.8	109.0	116.2

As this is the most up-to-date information available on New Hampshire power plant mercury emissions, NHDES requests that EPA rely on this data when performing mercury analyses instead of the previous data that EPA has posted on its mercury website, the previous data used by EPA for its Clear Skies Act (CSA) 2003 modeling runs, its IPM modeling runs, its mercury MACT or its alternative mercury cap and trade modeling runs.

The following table compares the total annual mercury emissions estimates previously used by EPA in its CSA 2003 modeling to the new total annual mercury emissions estimates calculated by NHDES from the May and June, 2003 utility stack test results used in conjunction with other NHDES in-house mercury emissions data:

Table 2: New Hampshire Total Annual Mercury Emissions for Stationary Sources (pounds/year)

	1996 All Stationary Sources	1996 Coal-fired Power Plants	2001 All Stationary Sources	2001 Coal-fired Power Plants
NHDES	1399	112.7	705	119.5
EPA*	678.4	488.8	678.4	488.8

*Based on EPA's Clear Skies Act 2003 modeling emission files for the 1996 Base and the 2001 proxy cases.

As shown above, EPA's 1996 Base Case New Hampshire All Stationary Sources total mercury value is approximately 50% of NHDES' 1996 New Hampshire All Stationary Sources total mercury estimate, while at the same time EPA's 1996 New Hampshire EGUs total mercury value is four times higher than NHDES' 1996 New Hampshire EGUs total mercury estimate. It is NHDES' understanding that the data shown above was used by EPA for: EPA's proposed mercury MACT and mercury Alternative modeling, EPA's Clear Skies 2003 modeling; and EPA's proposed IAQR rule "co-benefits" analysis. Furthermore, it is NHDES' understanding that the 2001 Proxy inventory, used to create the data shown above, was not prepared using standard EPA protocols for EGUs or any source sector. (See Attachment #21 which is a copy of the EPA's spreadsheet file outlining some of the assumptions used by EPA to prepare the 2001 Proxy inventory).

By reviewing the summary of the stack test results (see Attachment #5) and the NHDES bar graphs showing the estimated annual speciated mercury emissions for Merrimack Station Units 1 and 2 and Schiller Station Units 4, 5, and 6 (see Attachments #7, #8, #9, #11, #12, #13 and #14), it can be noted that 72-94 percent of the mercury emitted by these units is emitted as oxidized mercury (Hg^{+2}). Approximately 93 percent of the mercury emitted by Merrimack Station Unit 1, 94 percent of the mercury emitted by Merrimack Station Unit 2, and 72 percent of the mercury emitted by Schiller Station Units 4, 5, & 6 is emitted as oxidized mercury (Hg^{+2}). NHDES estimates that the 2003 annual emissions of oxidized mercury (Hg^{+2}) from: Merrimack Station Unit 1 were 32 pounds; Merrimack Station Unit 2 were 77 pounds; and Schiller Station Units 4, 5, and 6 were 7 pounds. Emissions of this magnitude have the potential to cause localized environmental impacts ("hot spots") which cannot be dealt with solely through a cap and trade program.

C. Addressing mercury "hot spots"

EPA's own studies, as well as this new data, show that localized mercury deposition can be severe in some areas and can originate from facilities that will not likely be controlled under a trading scheme. The data presented above indicates that New Hampshire is not immune from these adverse localized environmental impacts ("hot spots"). A cap and trade approach alone will not address local "hot spots" of mercury. EPA must adopt stringent plant-specific MACT in order to address localized mercury deposition and the other environmental and public health-related problems associated with such deposition.

As previously stated in this correspondence, even if one was to assume that EPA is authorized to adopt a cap and trade program for mercury, EPA should only consider doing so as a means to supplement a stringent MACT standard based on strict plant-specific controls that eliminate "hot spots," as required by Section 112 of the Clean Air Act. EPA's proposal to adopt a cap and trade program without adoption of plant-specific MACT standards is neither good environmental policy nor good public health policy since trading programs alone fail to address the issue of local mercury deposition and the health risks posed to citizens living near coal-fired power plants. The fact that some forms of mercury emissions are transported does not mean that a market-based cap and trade approach by itself would be an adequate means to reduce health-related risks associated with the oxidized (Hg^{+2}) form of mercury which is deposited in the local environment.

Since both Schiller Station (a small coal-fired facility) and Merrimack Station (a mid-sized coal-fired facility) are located in New Hampshire, EPA's prediction that the larger power plants will likely sell allowances to smaller generating units under its proposed trading scheme (see 69 Fed. Reg. at 4702, 2nd column) confirms that EPA's proposal will not address localized mercury deposition in New Hampshire. Even if, as EPA has assumed, large-sized generating units were to install controls and thus address "hot spots" associated with these large-sized units, EPA has already acknowledged that mid-sized and small generating units will likely purchase allowances rather than install controls, thus failing to address the "hot spots" associated with mid-sized and small generating units. Even if EPA's assumption is correct, this means not only that New Hampshire's "hot spots" will not be addressed by EPA's proposal, but also that the amount of mercury deposited in these "hot spots" will continue to increase. This result will occur due to the published fact that mercury is a persistent, bioaccumulative, toxic compound. The only sure method for addressing "hot spots" is to reduce mercury emissions at their source which is one of the reasons for adopting plant-specific MACT standards for mercury. It is also a good reason for EPA to adopt stringent mercury MACT standards for all units no matter the size of the unit.

EPA's fallback position (that states can always adopt stricter mercury programs) provides an inadequate justification for adoption of a weak federal mercury program. This fallback position is flawed on at least four counts. First, it does not address air pollution transport if one state adopts a stricter mercury program and another state does not. Second, many states are precluded by state law from adopting programs more stringent than the corresponding EPA program. Third, New Hampshire legislation relies upon the adoption of a strict federal standard under Section 112 of the Clean Air Act as a means to establish state limits on mercury emissions from local power plants. See, e.g., New Hampshire Revised Statutes Annotated Chapter 125-O:3, c (annual mercury cap to be based upon EPA's MACT standard for utility boilers). Therefore, EPA's

proposal to adopt a trading program, rather than a strict MACT standard under Section 112, will make it more difficult for states like New Hampshire to control in-state mercury emissions. The effectiveness of the New Hampshire program for addressing local “hot spots” is directly dependent on the strength or weakness of the federal program. Fourth, relying on states to adopt meaningful controls creates an economic disincentive for such controls, as utilities in “lax” states will obtain an economic advantage. This is not what the CAA was designed to accomplish. Once again it is of critical importance to New Hampshire and other states that EPA adopt a stringent MACT standard pursuant to Section 112 in order to address localized “hot spot” impacts from mercury emissions before considering any proposal to adopt a trading program for mercury emissions.

Specific Comments

A. Commercially Available Control Technologies for Reducing Mercury from Utility Boilers

NHDES concurs with the opinion expressed by several other state and local air pollution control agencies that activated carbon injection (ACI) is one of several commercially available, cost-effective control technologies for reducing mercury emissions from coal-fired utility boilers. Other commercially available, cost effective control technologies for reducing mercury emissions from coal-fired utility boilers include: wet electrostatic precipitators, fly ash injection systems for injecting high carbon content fly ashes, selective catalytic reduction (SCR) systems, wet and dry flue gas desulfurization (FGD) systems, and conventional fabric filters (baghouses).

Wet electrostatic precipitators and fly ash injection systems capable of removing substantial amounts of mercury are already in use on coal-fired utility boilers in the U.S., Europe, and Japan. Summaries of the data on these control systems were presented to EPA at the Mega Symposium sponsored by EPA, NETL, EPRI, and AWMA on May 19-22, 2003 in Washington, DC. Wet electrostatic precipitators, fly ash injection systems for injecting high carbon content fly ashes, SCR systems, wet and dry FGD systems, and conventional baghouses have been commercially available, installed and operated on coal and oil-fired utility boilers for many years. ACI systems are commercially available and have already been installed on municipal solid waste incinerators in order to control mercury emissions. At a minimum, EPA should consider all of these control systems as commercially available for controlling mercury emissions from coal-fired utility boilers when making its decision for “beyond the floor” MACT control options if not for establishing the MACT floor control level itself.

B. Sub-categorization Based on Coal Rank

EPA's current analyses which attempt to justify sub-categorization based on coal rank are severely flawed because of the limited amount of stack test data collected and analyzed to date. As more stack test data continues to be collected, primarily at the state level, it becomes increasingly evident that factors other than coal rank are more important in determining mercury speciation and the ability of commercially available control technologies to reduce mercury emissions from coal-fired utility boilers. Important factors that affect mercury speciation and air pollution control technology effectiveness include: the combustion efficiency of the furnace

(utility boiler) and the combination of air pollution controls that are used in conjunction with the furnace.

Regarding the combustion efficiency of the furnace, if coal is burned in a highly efficient cyclone boiler, most of the mercury will be released from the furnace as either gaseous elemental mercury (Hg^0) or oxidized mercury (Hg^{+2}) rather than particulate mercury (Hg^p). This result will occur in part due to the high heat release rate and high combustion efficiency which are inherent as part of the design of a cyclone furnace and this result is independent of the rank of the coal combusted in the cyclone furnace. (See stack test results from Merrimack Station in Attachment #5 and U.S. DOE in Attachment #26). On the other hand, when the same rank of coal is burned in a furnace with a lower combustion efficiency, e.g., a tangential furnace, more of the mercury will be released from the furnace as particulate mercury (Hg^p) and less of the mercury will be released from the furnace as a gas in the forms of elemental mercury (Hg^0) or oxidized mercury (Hg^{+2}). This result is due in part to the lower heat release rate and lower combustion efficiency of a tangential furnace when compared to a cyclone furnace and this result is also independent of the rank of the coal combusted in the tangential furnace (See Attachment #5 with stack test results from Schiller Station and Attachment #26 with stack test results reported by ADA-ES, Inc. from stack testing performed with primary funding by the U.S. DOE/NETL). These results have already been demonstrated for bituminous coal and can be confirmed for other ranks of coal through additional stack testing.

Regarding the combination of air pollution controls, it has already been documented that when mercury in the gaseous form is passed through a selective catalytic reduction (SCR) catalyst, the majority of the gaseous mercury will be converted to the oxidized (Hg^{+2}) form, a form linked with mercury deposition "hot spots". This reaction can be enhanced through proper catalyst selection and is also enhanced when chlorine (Cl^-) is present in the stack gases. (See stack test results from Merrimack Station in Attachment #5 and U.S. DOE in Attachment #26). It has also been demonstrated that when mercury is emitted as particulate mercury (Hg^p), it can easily be collected in either a conventional electrostatic precipitator (ESP) or a conventional fabric filter (baghouse) with collection efficiency increased when the fabric filter is employed. (See stack test results from Schiller Station in Attachment #5 and U.S. DOE in Attachment #26). As stated above these results have already been demonstrated for bituminous coal and can be confirmed for other ranks of coal through additional stack testing.

NHDES recommends that EPA set a single, stringent mercury MACT standard for all coal-fired utility boilers without regard to the rank of coal that is combusted. For existing units this standard cannot be less stringent than the average emission limitation achieved by the best performing 12 percent of existing sources for which the EPA Administrator has emissions information. For new units this standard cannot be less stringent than the emission control achieved in practice by the best-controlled similar source. EPA MACT standards should be no less stringent than the standards found in the rules proposed by the State of New Jersey and promulgated by the State of Massachusetts (See Attachment #22 to this correspondence). Compliance with such stringent MACT standards can be achieved through the application of currently available control technologies. For example, compliance can be achieved for a cyclone boiler if SCR is used in conjunction with flue gas desulfurization (FGD) and an appropriate particulate matter control device, or if SCR is used in conjunction with activated carbon injection

and an appropriate particulate matter control device. Compliance with stringent MACT standards can also be achieved by a tangential boiler through the use of an appropriate particulate matter control device capable of efficiently collecting the high loss on ignition (LOI) fly ash, (high carbon content fly ash) when fly ash re-injection systems are not in use or through the use of ACI in conjunction with an appropriate particulate matter control device when fly ash re-injection systems are in use.

C. Estimates of Control Costs

NHDES has performed preliminary cost estimates for installing FGD or ACI on the coal-fired utility boilers located in New Hampshire using EPA methodology (see EPA SO₂ Report, EPA/600/R-00/093, November 2000, "Controlling SO₂ Emissions: A Review of Technologies" and EPA Contractor Memo, ICF Consulting, 9/30/00, "Mercury Control Cost Calculations: Assumptions, Approach, and Results"). Summaries of these control cost estimates are provided in Attachment #23 to this correspondence.

NHDES has also prepared a spreadsheet which compares the NHDES cost estimates to the cost estimates prepared by Public Service of New Hampshire (PSNH), ADA-ES and the U.S. Department of Energy (DOE-NETL) (see Attachments #24 and #25 to this correspondence). Estimated capital costs for FGD range from \$54.2 million to \$100.4 million depending on the size of the unit (boiler), whether or not the boiler needs to be converted into a balanced draft unit and whether or not a new stack must be constructed. Estimated capital costs for ACI systems range from \$0.98 million to \$47.3 million depending on the size of the unit (boiler), whether or not the boiler needs to be converted into a balanced draft unit, whether or not a fabric filter is installed, and whether or not a new stack must be constructed. Other organizations including the Northeast States for Coordinated Air Use Management (NESCAUM) have performed cost analyses with similar results (see NESCAUM report titled "Mercury Emission from Coal-Fired Power Plants, The Case for Regulatory Action," NESCAUM, October 2003).

While control costs for FGD and ACI estimated by NHDES, using EPA methodology, may not be applicable on a unit specific basis to all coal-fired utility boilers, they provide sufficient data to justify a MACT standard for all boilers at least as stringent as the standards found in the rules proposed by the State of New Jersey and the State of Massachusetts (see Attachment #22). Allowing emissions averaging for all coal-fired boilers located at a single facility can further reduce the cost of compliance with such standards.

D. State Initiatives to Control Mercury Emissions from Coal-fired Utility Boilers

Where permitted by state law, several states, including Connecticut, Iowa, Massachusetts, Minnesota, New Jersey and North Carolina, have already taken the initiative to control mercury emissions from coal-fired utility boilers. These initiatives include state laws, proposed and final state rules and state issued permits. A draft matrix comparing state specific mercury reduction limits to EPA's proposed mercury reduction limits can be found in Attachment #22. As previously stated, state specific mercury emission limits proposed by the State of New Jersey and the state specific mercury emission limits adopted by the Commonwealth of Massachusetts are significantly more stringent than the EPA's proposed mercury reduction limits. NHDES recommends that EPA increase the stringency of its limits not only to support these state

initiatives, but also because these state mercury emission limits are achievable through the use of commercially available, cost-effective mercury control technologies.

E. Other Regional Initiatives to Control Mercury and Other Pollutants

In the event that EPA decides to pursue both MACT standards pursuant to Section 112 of the CAA and trading and banking regulations pursuant to Section 111 of the CAA for regulating HAP emissions from coal and oil-fired utility units, NHDES recommends that EPA base its trading and banking programs on the recommendations issued by both the State and Territorial Air Pollution Control Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO), and the Ozone Transport Commission (OTC). Copies of these recommendations can be obtained from the STAPPA and ALAPCO website and the OTC website.

This NHDES recommendation refers to: the STAPPA and ALAPCO analysis titled "Analysis of STAPPA and ALAPCO's May 7, 2002 Principles for a Multi-pollutant Strategy for Power Plants," March 2004; and the "Multi-Pollutant Strategy Position of the Ozone Transport Commission," Final – Approved January 2004. The STAPPA and ALAPCO analysis recommends the following national caps for mercury: a 15-20 ton per year interim cap by 2008 and a 5-10 ton per year cap by 2013. The OTC strategy recommends the following national caps for mercury: a 15 ton per year interim cap for 2008, a 10 ton per year maximum cap for 2012 and a cap of approximately 5 tons per year for 2015. Both of these recommendations are more stringent and more timely than the programs currently proposed by EPA and thus would ensure the installation of the best available controls on all existing coal-fired utility boilers nationwide.

Thank you for the opportunity to provide comments on this important rulemaking and for your thoughtful consideration of these comments. If you have any questions or need any additional information regarding these comments, please feel free to contact Andrew M. Bodnarik at (603) 271-6800 (or e-mail: abodnarik@des.state.nh.us).

Sincerely,

(Original Signed)

Jeffrey T. Underhill, Ph. D
Chief Scientist
Air Resources Division

Attachments: CD ROM with list of references & electronic data files

Cc: Michael P. Nolin, Commissioner
Michael J. Walls, Asst. Commissioner
Robert R. Scott, Air Resources Division Director
Maureen Smith, Assistant Attorney General

Attachment # 1
(NHDES Comments 062404)

1. "Control & Prohibition of Mercury Emissions" State of New Jersey, DEP, (Proposed Rule), January 2004.
2. "Control & Prohibition of Mercury Emissions" State of New Jersey, DEP, (Public Notice), January 2004.
3. "Mercury in New Hampshire and Vermont Lakes" State of Vermont, Neil C. Kamman, (Assessment), March 2003.
4. "Prevention of Significant Deterioration (PSD), Technical Support Document (TSD)," State of Iowa, Department of Natural Resources, Environmental Services Division, Air Quality Bureau, (Permit Review), April 2003.
5. "Mercury MACT Under the Clean Air Act", Mercury Emissions Outcomes of Stakeholder Group Recommendations, NESCAUM, (Assessment), May 2003.
6. "Northeast States New Report Shows Over 90% Reduction in Power Plant Mercury Emissions is Achievable", NESCAUM, (Press Release), November 2003.
7. "To Construct and Operate a Pulverized Coal Steam Electric Generating Station for Thoroughbred Generating Co. LLC", Kentucky DEP, (Application to construct), December 2002.
8. "Comparison of Mercury Control Costs with NOx Control Costs," (Power Point Presentation) EPA, 2001.
9. "Sampling Locations for Common Loon Blood and Eggs Used for Mercury Analysis", (Map), 2001.
10. "Utility Air Toxics Regulatory Finding", National Tribal Environmental Council, by Wm. Maxwell, USEPA OAQPS/ESD/CG, (Power Point Presentation), April 2001.
11. "EPA Emergency Planning and Community Right-to-know Act – Section 313", Guidance to Reporting Toxic Chemicals: Mercury and Mercury Compounds, April 2001.
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